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Std. VI Div. A Roll No.

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19	Ch-8 Ex 8(B) CHCF	98 - 104	23.6.21		
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Thursday

EX - 8(C)

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LOWEST COMMON MULTIPLE

1. Using the common multiple method, find the L.C.M of the following:

i) 8, 12 and 24

8 = 8, 16, (24), 32, 40, (48), 56, 64, (72), 80, (96)...
12 = 12, (24), 36, (48), 60, (72), 84, (96), 108, 120...
24 = (24), (48), (72), (96), 120, 144, 168....

LCM = 24

ii) 10, 15 and 20

10 = 10, 20, 30, 40, 50, (60), 70, 80, 90, 100...
15 = 15, 30, 45, (60), 75, 90....
20 = 20, 40, (60), 80, 100, 120, 140...

LCM = 60

iii) 3, 6, 9 and 12

3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, (36)...
6 = 6, 12, 18, 24, 30, (36), 42, 48, 56, 60....
9 = 9, 18, 27, (36), 45, 56, 63, 72, 81, 90...
12 = 12, 24, (36), 48, 60, 72, 84, 96....

LCM = 36

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Ex - 8(C)

2. 18, 24 and 96

i)

2	18, 24, 96
3	9, 12, 48
2	3, 4, 16
2	3, 2, 8
	3, 1, 4

LCM = 2 × 3 × 2 × 2 × 3 × 4
= 288

ii)

~~2~~	~~34, 85, 51~~
5	~~34~~, ~~85~~, 51
	17,

2	34, 85, 51
5	17, 85, 51
3	17, 17, 51
17	17, 17, 17
	1, 1, 1

LCM =

⟹ Ex - 16, 12 → HCF and LCM

HCF of 6 and 12 = 6
LCM of 6 and 12 = 12

⇒ HCF 12, 18 = 2 × 3 = 6
LCM = 2 × 3 × 3 × 2 = 36
HCF × LCM = 36 × 6
= 216
⇒ 12 × 18 = 216

2	18, 12
3	9, 6
	3, 2

HCF × LCM = Product of the given number

3. HCF = 50 LCM = 300
1st no = 150 2nd No = ??
Product of 2 no.s = HCF x LCM
150 x 2nd no = 50 x 300 = 15000
2nd No = 15000 ÷ 150
= 100

(or)

3	12, 15, 18, 24, 36
2	4, 5, 6, 8, 12
2	2, 5, 3, 4, 6
3	1, 5, 3, 2, 3
	1, 5, 1, 2, 1

LCM = 3 x 2 x 2 x 3 x 5 x 2
= 360

∴ 360 is the no which when divided by 12, 15, 18, 24, 36 leaves no remainder

28.06.2021

Prime factor Method (LCM)

Q) 72, 80, 252

72 = $2 \times 2 \times 2 \times 3 \times 3$ = $2^3 \times 3^2$

80 = $2 \times 2 \times 2 \times 2 \times 5$ = $2^4 \times 5$

252 = $2 \times 2 \times 3 \times 3 \times 7$ = $2^2 \times 3^2 \times 7$

LCM = $2^4 \times 3^2 \times 5 \times 7$

2) 48, 66 and 120

48 = $2 \times 2 \times 2 \times 2 \times 3$ = $2^4 \times 3$

66 = $2 \times 3 \times 11$ = $2 \times 3 \times 11$

120 = $2 \times 2 \times 2 \times 3 \times 5$ = $2^4 \times 3 \times 5$

LCM = $2^4 \times 3 \times 11 \times 5$

= $2 \times 2 \times 2 \times 2 \times 3 \times 11 \times 5$

= 5280

Revision LCM

Q6 i) The smallest number which is completely divisible by 8 and 12 is their LCM

8. 108, 450

2	108, 450
3	54, 225
3	18, 75
	6, 25

HCF $2 \times 3 \times 3$

$= 18$

Product of the nos

HCF x LCM

$108 \times 450 = 18 \times LCM$

$LCM = \frac{108 \times 450}{18} = 108 \times 25$

$= 2760$

Home assignment

→ Revision exercise (Chapter 8)

1. HCF of

i) 108, 288 and 420

→

$108 = 2 \times 2 \times 3 \times 3 \times 3$

$288 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$420 = 2 \times 2 \times 3 \times 5 \times 7$

HCF $= 2 \times 2 \times 3$

$= 12$

2	108
2	54
3	27
3	9
	3

2	420
2	210
3	105
5	35
	7

2	288
2	144
2	72
2	36
2	18
3	9
	3

iii) 36, 54, 138

36, 54

HCF of 36, 54
= 18

```
36) 54 (1
   36
   --
   18) 36 (2
       36
       --
        0
```

```
18) 132 (7
    126
    ---
     12) 18 (1
         12
         --
          6) 12 (2
             12
             --
              0
```

HCF of 132, 18
= 6

HCF = 6

2. true or false (give example)

i) HCF of two prime no. is 1. True

Ex- 2 and 3
are prime no.
there HCF eq - $2 = 2 \times 1$
$3 = 3 \times 1$
HCF = 1

ii) HCF of two co-prime no. is 1. True
15 and 16
HCF = 1

iii) LCM of 2 prime no. is equal to their product. True
Ex -
2 and 11
= 7 × 11 = 77 and 77 is also the LCM of both

iv) LCM of two co-prime numbers is equal to their product True
Ex -
27 and 64 are co-prime no.
27 × 64 = 1728 and it is also the LCM of both.

4. Product two no. is 1296
HCF = 36
LCM =

Product of 2 no. = HCF × LCM

So, $\frac{\text{Product of 2 no.}}{\text{HCF}} = \text{LCM}$

$\therefore \frac{1296}{36} = 36 = \text{LCM}$

5. Product of HCF and LCM = 1152
One no. = 48
other no. = ?

Product of HCF and LCM
= the product of 2 no.s

∴ HCF × LCM =
Product of 2 no.s = 1152

48 × ? = 1152

$= \frac{1152}{48} = 24$

Other no = 24

6. (ii)

Larger no. divided by 28 and 42 is HCF

HCF

28 = 2 × 2 × 7
42 = 2 × 3 × 7

HCF = 2 × 7
= 14

2 | 28
2 | 14
7

2 | 42
3 | 21
7

7. LCM of 140 and 168

2 | 140, 168
2 | 70, 84
3 | 35, 42
7 | 35, 14
5, 2

LCM = 2 × 2 × 3 × 7 × 5 × 2
= 840

Product of 2 nos. is
= HCF × LCM

~~Proo~~ HCF = $\frac{\text{Product of 2 nos}}{\text{LCM}}$

= $\frac{140 \times 168}{840}$

Ex 8(C) HW

2. in Prime factor method

ii) 100, 150, 200

$100 = 2 \times 2 \times 5 \times 5 = 2^2 \times 5^2$

$150 = 2 \times 3 \times 5 \times 5 = 2 \times 3 \times 5^2$

$200 = 2 \times 2 \times 2 \times 5 \times 5 = 2^3 \times 5^2$

LCM $= 2^3 \times 3 \times 5 \times 5$

$= 8 \times 3 \times 25$

$= 600$

iii) 14, 21, 98

$14 = 2 \times 7$

$21 = 3 \times 7$

$98 = 2 \times 7 \times 7$

LCM $= 2 \times 7 \times 7 \times 3$

$= 294$

iv) 22, 121, 33

$22 = 2 \times 11$

$121 = 11 \times 11$

$33 = 3 \times 11$

LCM $= 2 \times 3 \times 11 \times 11$

$= 726$